## REMARKS/ARGUMENTS

Reconsideration of the application is requested.

Claims 1-7 and 9-24 remain in the application. Claims 1, 6, and 9-10 have been amended. Claim 8 has been cancelled. Claims 14-24 have been withdrawn.

In item 3 on page 2 of the above-identified Office action, claims 1 and 5-13 have been rejected as being indefinite under 35 U.S.C. § 112, second paragraph.

More specifically, the Examiner has stated that the claimed total porosity is unclear in claim 1, rendering the above claims indefinite. Appropriate correction has been made.

In item 4 on page 2 of the above-identified Office action, claim 6 has been rejected as being indefinite under 35 U.S.C. § 112, second paragraph.

More specifically, the Examiner has stated that the ordering of the layers is unclear, rendering the claim indefinite.

The language of claim 6 has been modified in an effort to even more clearly define the invention of the instant application.

It is accordingly believed that the claims meet the requirements of 35 U.S.C. § 112, second paragraph. Should the Examiner find any further objectionable items, counsel would appreciate a telephone call during which the matter may be resolved. The above-noted changes to the claims are provided solely for cosmetic and/or clarificatory reasons. The changes are neither provided for overcoming the prior art nor do they narrow the scope of the claims for any reason related to the statutory requirements for a patent.

In item 6 on page 3 of the above-mentioned Office action, claims 1-13 have been rejected as being anticipated by Krenkel et al. (US 6,358,565) under 35 U.S.C. § 102(e).

In item 7 on page 3 of the above-mentioned Office action, claims 1-3, 5-6, 8-10, and 12 have been rejected as being anticipated by Hanzawa et al. (US 6,472,058) under 35 U.S.C. § 102(e).

In item 8 on page 3 of the above-mentioned Office action, claims 1, 4, 7, 11, and 13 have been rejected as being anticipated by Pfaff (US 5,580,834) under 35 U.S.C. § 102(b).

The rejections have been noted and claim 1 has been amended in an effort to even more clearly define the invention of the

instant application. Support for the changes is found on page 6, lines 14-15 and page 16, lines 4-5 of the specification as well as original claim 8.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 calls for, inter alia:

> a second layer B containing particles of silicon carbide bound in part by carbon binding phases and in part directly by sintered bridges, said second layer B containing nitrides of at least one element selected from the group consisting of silicon, titanium, zirconium, boron, and aluminum;
>
> the ceramic composite body being a single one-piece body, the ceramic composite body containing no fibers, and the ceramic composite body having pores in a proportion of from 10 to 35% of the ceramic composite body by volume.

Krenkel et al. describe a method for providing a protective coating on a substrate. This is achieved by the following steps (see claim 1 of Krenkel et al.):

- providing a substrate made of a material having a softening temperature above the melting temperature of silicon;
- covering the surface of the substrate with a porous carbon coating consisting essentially of carbon, wherein the coating has an open porosity in a range between 40 and 95%;

- applying a further coating layer of silicon directly on the porous carbon coating and over the substrate, wherein the ratio of the mass of the applied silicon to the mass of the carbon is selected from within a range of 2.35 to 49;
- heating the substrate to a temperature above the melting point of silicon but below the boiling point of silicon, the heating being done under vacuum or in an inert atmosphere to cause the silicon to melt and infiltrate the porous carbon coating and to bring the silicon to reaction with the carbon; and
- cooling the substrate down to room temperature.

Thus, in contrast to the invention of the instant application, where the multi-layer structure is produced by silicon infiltration of a porous base body (see page 6, lines 14-15 of the instant application), i.e. a single one-piece body, in Krenkel et al. the substrate and the coating layer are formed separately. Since the substrate and the coating are discrete layers in Krenkel et al.'s ceramic body, the composition of the coating layer inevitably will be different from the composition of the substrate.

In contrast, the invention of the instant application generally starts with a homogenous green body (see page 9, line 18 of the

specification). In a preferred embodiment of the invention of the instant application, the green body is a multi-layer green body (see page 16, line 7 of the specification). However, even in the case of a multi-layer green body it is still a one-piece body which is siliconized (see steps b) and c) on page 14 of the specification), while Krenkel et al. have a conglomerated body including a substrate and a coating.

In the invention of the instant application, the pores of the outer region of the single-piece green body are infiltrated with silicon (see page 17, line 2 of the specification). In contrast, in Krenkel et al. the porous carbon coating on the substrate is infiltrated with silicon (see column 7, line 8 of Krenkel et al.).

These different manufacturing techniques result in different product structures. In the invention of the instant application, the layer A merges into layer B whereby the transition is generally recognizable by the decrease of the silicon content (see page 12, lines 14-16 of the specification). Accordingly, the microscopic picture of the ceramic body shows a rather continuous transition from layer A to layer B (See the single figure of the instant application). The continuous structure of the single-piece pre-body, which

extends through both layers A and B, is clearly recognizable from the figure of the instant application.

In contrast, the microscopic picture of Krenkel et al's material (see Fig. 2 of Krenkel et al.) shows discrete layers (numerals 1 and 6) with a rather sharp transition and without a continuous merging of the coating layer 6 into the substrate 1.

Another important difference between the invention of the instant application and Krenkel et al. is the susceptibility to cracks. Krenkel et al. concede that undesired tension cracks might occur during the cooling period as a result of a maladjustment (structural mismatch) between the substrate and the coating layer (see column 4, lines 18-22). This problem does not occur in the invention of the instant application since layers A and B are formed in a continuous single piece body without sharp layer boundaries. Thus a structural mismatch between different discrete layers cannot occur in the invention of the instant application.

Hanzawa et al. unequivocally disclose a fiber composite material (see, for example, the title of this patent and claim 1). In column 2, line 63 of Hanzawa et al. "a new light-weight fiber-composite material" is stated as the object of the Hanzawa et al.'s invention.

In contrast, an important advantage of the invention of the instant application is that expensive carbon fibers are completely or almost completely avoided (see page 16, lines 4-5 of the specification). The only part that may contain fibers is the optional backing layer (see page 7, line 17 of the specification). However, this is not directly a part of the inventive ceramic body according to the invention of the instant application.

Thus, the Hanzawa et al. disclosure of a fiber composite clearly teaches away from the invention of the instant application and do not disclose the layer structure of the claimed porous body of the instant application.

Pfaff does not disclose a layer structure at all, but rather a composite material that has the same microstructure throughout the material (see column 3, lines 1-3). This statement is supported by Figs. 2A, 2B, 3A-C, 5A-E which show continuous structures instead of layer structures. What is shown in Figs. 4A and 4B is also not a layer structure, but portions of a mating ring and cooperating seal (see column 9, lines 47-69). Furthermore, the typical density of Pfaff's material is between 2.55 and 2.65 g/cm$^3$, which is above the density of material B of the invention of the instant application. According to

claim 4 of the instant application, material B has a density below 2.55 g/ccm.

In addition, it is noted that the material of the invention of the instant application contains nitrides (see original claims 8 and 9 and amended claim 1). The nitrides are important in controlling the depth of the silicon infiltration (see page 17, lines 14-20 of the specification).

The materials disclosed by Krenkel et al. and Pfaff do not contain nitrides, and the material disclosed by Hanzawa et al., which optionally contains boron nitride, differs from the invention of the instant application because it contains fibers.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claim 1. Claim 1 is, therefore, believed to be patentable over the art and since all of the dependent claims are ultimately dependent on claim 1, they are believed to be patentable as well.

In view of the foregoing, reconsideration and allowance of claims 1-7 and 9-13 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate a telephone call so that, if possible, patentable language can be worked out.

If an extension of time for this paper is required, petition for extension is herewith made. Please charge any fees which might be due with respect to 37 CFR Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,

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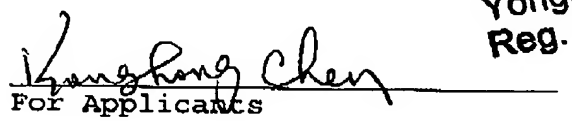

For Applicants

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